ELEMENTS OF HISTOLOGY. By E. KLEIN, M.D., F.R.S., Lecturer on General Anatomy and Physiology; and J. S. EDKINS, M.A., M.B., Joint Lecturer and Demonstrator of Physiology in the Medical School of St. Bartholomew's Hospital. With 296 illustrations, revised and enlarged edition. Philadelphia and New York: Lea Brothers and Co.

THE new edition of Prof. Klein's popular *Histology* shows some marked improvements on previous editions. New illustrations have been added, the text has been enlarged, and the chapters on the Central Nervous System and on the Alimentary Canal have been rewritten. As in previous editions, no attempt has been made to furnish a laboratory manual, and all directions for the preparation and examination of tissues are dispensed with. The subject of histogenesis is not extensively considered. The book is, therefore, purely descriptive and can be relied upon to give in a small compass a large amount of trustworthy information, clearly put and easily understood and attained. Students who have mastered this little volume may present themselves with little fear at their theoretical examination in histology, and there are few books which we would so heartily indorse.

The text is materially elucidated by the many excellent illustrations. The micro-photographs, which are scattered quite abundantly throughout the work, share in the common objection to this class of illustrations, in that they are often more confusing than helpful, and could have been largely replaced by good drawings with considerable advantage.

There is a pleasing absence of a defect only too common in text-books, viz., one-sidedness, either in the space allotted to the subjects or in the thoroughness and fairness in their treatment.

If it were permissible to select any one part better than the others, we should fix upon the chapter on the Central Nervous System, which, with the help of many excellent illustrations, is, perhaps, more clearly and comprehensively treated than in many other small general text-books of histology. The authors deserve especial compliments upon this portion of their book.

C. A. H.

ATLAS OF SYPHILIS AND THE VENEREAL DISEASES, INCLUDING A BRIEF TREATISE ON THE PATHOLOGY AND TREATMENT. By PROF. DR. FRANZ MRACEK, of Vienna. Authorized translation from the German. Edited by L. BOLTON BANGS, M.D., Consulting Surgeon to St. Luke's Hospital and the City Hospital, New York; Late Professor of Genito-urinary, Surgery and Venereal Diseases, New York Post-Graduate Medical School and Hospital. With seventy-one colored plates. Philadelphia: W. B. Saunders, 1898.

THIS *Atlas* contains in a compact form illustrations of the principal venereal lesions. The selection of subjects has been judiciously made, the typical and more common pathological conditions having been chosen, and the plates representing them are excellent. A concise description and brief clinical history of a case are given in every instance. There are 117 pages of text, interspersed with numerous formulæ.

C. A. H.

The Medical Treatment of Typhoid Fever.—STEWART (*The Montreal Medical Journal*, February, 1899) first refers briefly to the work that has been done on the immunizing and curative treatment of typhoid by means of serum-therapy. The subject is dismissed with the statement that, although it has apparently been effective in the disease as it is met with in susceptible animals, still it has been disappointing when applied to counteract the disease in the human subject.

The eliminative and antiseptic treatments advocated by Thistle and Woodbridge, respectively, receive severe criticism. Regarding the latter treatment, he says that, as the typhoid bacilli are not present in the intestinal tract prior to the breaking down of the lymph-tissue, it is impossible for antiseptics to reach them except through the blood, and it is, of course, vain to expect that any medicinal agent that we know of can exert a germicidal action on the organism collected in the lymph-tissues.

The antipyretic treatment is next dealt with. Of medicinal agents, antipyrine, phenacetin, and lactophenine are the ones now most frequently employed. Their use is discouraged, however. The cold-bath treatment of Brand is generally conceded to be the best. The statistics are universally favorable from all parts of the world. The mortality at the Red Cross Hospital at Lyons amounted to 7.3 per cent.; that of Hare, in the Brisbane Hospital in Queensland, 7.84 per cent.; that at the German Hospital in Philadelphia, under Wilson and his colleagues, to 7.8 per cent.; that of Osler, in Johns Hopkins Hospital, to 7.8 per cent. According to J. C. Wilson, these statistics show that the Brand method, systematically carried out and applied to successive cases as they present themselves, is the means of saving, out of every hundred cases of the great endemic disease, at least seven more lives than by any other method.

The results obtained at the Royal Victoria Hospital in Montreal have been even more gratifying. Since its opening in January, 1894, 408 cases of typhoid fever have been treated. Only eighteen, or 4.4 per cent., were fatal. In nine, or exactly one-half of these fatal cases, death was caused by perforation and hemorrhage. Stewart states that the percentage of deaths due to perforation and hemorrhage is considerably greater with the Brand than with other forms of treatment.

There is no evidence to show that relapses are commoner with the bath treatment than with other methods. In a large series of cases relapses occur in from 3 to 12 per cent. In 325 of the 408 cases in which special pains were taken to study this point, relapses occurred in about 8 per cent. This percentage corresponds exactly with Osler's and Liebermeister's series, and is not larger than that given by observers in different countries where other plans of treatment are followed.

Next to perforation, intestinal hemorrhage is the commonest cause of death. Hemorrhage was the cause of death in three of Stewart's fatal cases. It is best treated by partial or complete restriction of nourishment by the mouth, application of a Leiter's coil over the abdomen, and elevation of the foot of the bed. Opium should be given in sufficient quantity to cause either slight drowsiness or contraction of the pupil.

Perforation was the cause of death in six of the eighteen fatal cases. Stewart says that the sooner the case is transferred to the surgeon after perforation occurs the better. The results of operation have been very encouraging. Keen has collected eighty-three cases, with eighteen recoveries.

Stewart appears to favor a milk or liquid diet, but refers to the more liberal dietary advocated by Barr, of Liverpool, and Shattuck, of Boston, both of whom have apparently obtained satisfactory results.

Chloride Metabolism in Pneumonia and Acute Fevers.—HUTCHISON (*The Journal of Pathology and Bacteriology*, 1898, vol. v. p. 406) has made a careful clinical and pathological study of chloride metabolism in pneumonia and acute fevers. There is an exhaustive review of the literature, to which are added the results of the writer's personal work.

The following is the author's summary of clinical facts:

1. During an attack of croupous pneumonia the chlorides in the urine are greatly diminished or may even entirely disappear.

2. A comparison of the intake and output shows a true retention of chlorides within the body. The amount retained averages about 2 grammes of sodium chloride for each day of the disease.

3. The diminution lasts usually for one or two days after the crisis, and is succeeded by a sudden and excessive secretion, the amount of chlorides in the urine now rising considerably above that in the food.

4. The degree of the diminution varies considerably in different cases, but bears no relation to the degree of fever present, to the extent of lung involved, or to the presence or absence of albuminuria.

5. The chlorides are the only constituent of the urine which is diminished in pneumonia; the phosphates and sulphates tend, like the urea, to be increased.

6. Diminution of chlorides is not pathognomonic of pneumonia, but may occur in other acute fevers, notably in typhus and acute rheumatism, but is more constant in croupous pneumonia than in any other febrile disease. In cases of malaria the chlorides are actually increased during the febrile period.

7. As croupous pneumonia is the only pulmonary disease in which diminution of chlorides occurs to any appreciable extent, an examination of the urine may prove of great value in the diagnosis of pneumonia from other causes of consolidation of the lung, and from empyema, pleurisy, etc. It must be borne in mind that the chlorides may be markedly diminished in some cases of disease of the stomach, notably in dilatation.

8. The degree to which the chlorides are diminished is no criterion of the severity of the disease in any particular case, and is of no help in forming a prognosis.

Hutchison summarizes the pathological facts as follows:

1. The absorption of the chlorides from the alimentary tract goes on normally in acute fevers, and no vicarious excretion occurs by the skin, bowel, sputum, or other channels.

2. The sputum in pneumonia is very rich in sodium chloride, containing sometimes as much as 19 per cent. in the solid matter; but in spite of this fact the total amount excreted daily in the sputum is small.

3. The inflammatory exudate contains from 2 to 4 per cent. of sodium

chloride in its solid matter, or not more than three times as much as the same weight of normal lung. It is thus not really very rich in chlorides, and the amount of the latter contained in the whole exudate will not account for more than one-third to one-half of the total amount of sodium chloride retained in the body during an attack of pneumonia.

4. The difference in composition between the exudate and the sputum indicates that the latter is not derived directly from the former.

5. The theory that the chlorides are retained because of a temporary functional disability on the part of the kidney to excrete them is negatived alike by the results of experiments and by a comparison of the composition of the urine of pneumonia with that of acute nephritis where diminution of excretory powers undoubtedly exists.

6. Examination of the blood from cases of pneumonia shows that the chlorides in it are diminished, but there is no evidence that they are present in any unusual form of combination. Their failure to appear in the urine must be attributed to the very delicate adjustment of the amount excreted by the kidney to the amount contained in the blood at the time.

7. There is no evidence that the chlorides tend to accumulate in any particular organ in pneumonia, but, on the other hand, all the organs, and the fixed tissues in general, seem to be somewhat richer in chlorides than normally.

8. Attempts to produce chloride retention in pyrexia artificially induced by the injection of the pneumococcus and by other means have failed.

9. As to the reason for the passage of chlorides out of the blood into the fixed tissues in pneumonia, one can merely speculate. Hutchison is unable to agree with the view that the chlorides are retained secondarily and as the result of the retention of a considerable quantity of water. The increased excretion of chlorides in malaria is probably to be attributed to increased arterial tension in the kidney during the pyrexial stage of that disease.

Glutoid Capsules in Diagnosis.—SAHLI (*Deutsches Archiv f. klin. Med.*, Band lxi., Heft 5 and 6) calls attention to the diagnostic and therapeutic importance of the glutoid capsules made under his direction and first made known more than two years ago. The so-called glutoid is gelatin hardened in formadehyde. It resists water and peptic digestion, but is readily dissolved in pancreatic digestion. The makers have found it possible to prepare the capsules in different grades of hardness or resistance to tryptic digestion, so that the individual capsules vary not more than three-tenths of a degree (one degree equals an hour) either way from the time indicated. As indicators, iodoform and salol were found most useful, the saliva being tested for iodine in the former case, the urine for iodine and salicylic acid in the latter, or both reagents were used in one or two capsules. A large number of experiments are reported in abstract, showing the diagnostic value of the method. This was very striking in cases of cancer of the pancreas with obstruction of the duct, and in one of these the demonstrated absence of pancreatic digestion was the only sign of involvement of the pancreas. The importance of the method is evident in cases of jaundice in which the pancreas may be concerned, but here the results must be used with caution, for in one of Sahli's cases with jaundice and pancreatic digestion autopsy revealed a small cancer of the head of the pancreas, compressing the common bile duct, but not the pancreatic duct. It is essential that the motility of the stomach is not impaired. In normal cases a capsule with a hardness of 2.9 gives the reaction within four hours. The "normal" dose of iodoform used was 0.15 gramme, and Sahli came to the conclusion that this was best given in three capsules of 0.05 gramme each. For children one or two capsules were used. The saliva is more readily tested than the urine, and gives the reaction usually in a shorter time. As the author remarks, many details must be worked out, but the value of the method in the study of intestinal and pancreatic digestion is obvious.

Disease of the Nervous System in Leukæmia.—EICHHORST (*Deutsches Archiv f. klin. Med.*, Band lxi. p. 519) has had occasion to look up the literature of this subject, and gives a brief *résumé* of the cases hitherto reported. Though the cases are few they show that various parts of the nervous system have been found involved in leukæmia, and in various ways, so that hemorrhages, small-celled infiltration, swelling of nerve-fibres, atrophy of nerve-fibres, and compression by lymphoid growths, have all been noted. The author's own case is interesting. A boy, aged seventeen years, had enormous enlargement of the axillary, infraclavicular and cervical lymphatic glands, with slight enlargement of the spleen and liver. There were 3,600,000 red corpuscles and 41,650 leucocytes per c.mm. Differential count of the latter showed 79 per cent. polynuclear, 16 per cent. mononuclear, and 5 per cent. eosinophiles, largely polynuclear; no nucleated reds. The patient was treated with lymph-gland tablets, arsenic, gray ointment, and anti-streptococcus serum in turn without benefit. Symptoms of compression of the spinal cord developed; the red corpuscles fell to 3,300,000; the leucocytes rose to 45,000. The axillary lymph-glands broke down; decubitus, diarrhœa, and collapse ended the scene. As a cause of the compression a mass of lymphoid tissue was found in the peri-dural fat, at the level of the fifth to the seventh dorsal vertebræ, pressing on the posterior surface of the cord, which was softened at that point. The enlarged glands were necrotic, but revealed no tubercle bacilli.

The report illustrates the difficulty of separating leukæmia from certain cases of sarcoma. The descriptions of the blood as detailed would not lead any one to suspect leukæmia, especially the lymphatic form, as the author calls this, and even the high ratio of uric-acid to urea seems insufficient to corroborate his views, inasmuch as both were decreased. The meagre description of the blood and the general confusion of the protocol are much to be regretted in view of the great importance of such anomalous cases in the study of leukæmia.

The Electric Relation of the Heart in Tetany.—The late Dr. H. F. MÜLLER published a note on this subject (*Deutsches Archiv f. klin. Med.*, Band lxi. p. 632), the importance of which is obvious. Von Ziemssen had shown that the exposed heart reacts to electric currents as do the striped muscles. Müller examined a number of cases of tetany, beginning with weak currents, and increasing up to 15 or 20 milliampères, using the electrodes in different ways as had been done by von Ziemssen. In no case was it possible to influence the heart by the galvanic current, except that pain, especially in the skin, was followed by acceleration of the pulse. This corresponds with the clinical fact that the heart is not involved in tetany. On the other hand, the phrenic nerves showed increased irritability to the galvanic current.

Tetany Checked by Pylorectomy for Cancer.—ALBU (*Archiv f. Verdauungskrankheiten*, Band iv. p. 466) reports a case interesting in many particulars. The patient was a man, aged thirty-four years, ill for six months with vomiting, severe pain in the epigastrium, and emaciation. Examination showed dilatation of the stomach with decomposition of ingesta; neither lactic nor hydrochloric acid, no sarcinæ, no long bacilli. No tumor could be made out. The diagnosis of cancer of the pylorus was made more probable by the further course of the symptoms, which grew worse in spite of treatment. Lactic acid was present at times. One morning the patient had a sudden attack of tetany, incomplete, inasmuch as Trousseau's and the facial phenomena were absent. An operation, declined before, was now consented to. As the cause of dilatation, a small scirrhus of the pylorus was found. The pylorus was resected. Recovery followed. At the end of four months the patient had gained twenty-seven pounds. All evidence of tetany disappeared after the operation. The dilatation disappeared by the second month, and the motor power of the stomach also was normal by that time. Lactic acid did not appear again, nor was the secretion of HCl restored.

Albu looks on the case as strong proof of the toxic origin of tetany. He also shows, in opposition to some others, how tetany complicating gastric cancer indicates an operation more strongly than simple cancer, because the danger of tetany, as regards duration of life, is even greater than that of cancer. Incidentally, he condemns gastroenterostomy, with or without pylorectomy, as less likely to secure good results than resection with union of the two ends.

Diabetes Insipidus.—STRUBELL (*Deutsches Archiv f. klin. Med.*, Band lxii. p. 89) publishes some careful observations on two cases of this obscure disease, and throws a good deal of light on some of its problems. The two patients represented the mild and severe forms of the disease, and showed certain important differences. In both more water was excreted than was ingested (*i. e.*, in an experiment lasting a few hours). In the milder case the excretion ceased after long abstinence from water, with severe thirst, but no general symptoms. In the severe form long-continued lack of excretion was not observed, for the body soon became dangerously depleted and water could not be withheld on account of danger to the heart. In mild cases the absorption and excretion of water follow the same laws as in healthy persons. In health excessive quantities of fluid are excreted by the kidneys, the activity of which is practically unlimited. The insipidus patient excretes much water even without excessive drinking, and so is obliged to drink. It is therefore not permissible to speak of the polydipsia as the primary affection. This conclusion was confirmed by the condition of the blood, which rapidly became concentrated when water was withheld, but did not become abnormally dilute, even when larger quantities were taken. The observations did not clear up the question as to nitrogenous metabolism in diabetes insipidus.

In the mild case there was an increase, while in the severe case, with twenty litres of urine daily, the excretion of N was normal. In both cases NaCl was diminished. Inosite was not found. The insensible perspiration was diminished in both cases. Very curious was the fact that sweating in the hot air bath lessened the feeling of thirst. Neither sweating nor aseptic fever exercised a beneficial effect, though fever lessened the excretion of urine.

SURGERY.

UNDER THE CHARGE OF

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Fractures of the Radius.—DESTOT and GALLOIS (*Rev. de Chir.*, 1898, No. 10) has studied experimentally the fractures that occur in the lower end of the radius and the other bones forming the wrist-joint. The forearm was placed in varying relations to the hand, and a blow applied upon the olecranon. From these studies they deduce the following, among other conclusions:

The interosseous ligament plays but a secondary part in the transmission of force through the forearm. It assists the radio-ulnar ligaments in making a rigid joint between the radius and ulna. The blow upon the olecranon forces the ulna downward until it encounters an obstacle. In a like manner the radius is forced downward till it strikes the carpal bones, then its diaphysis penetrates its epiphysis because of its inertia, and produces a fracture.

When the hand rests upon the ground, extended to a right angle, without lateral inclination, the ligaments play no part. The anterior radio-carpal ligament plays no part. The interosseous is an accessory transmitting force. The fracture of the radius results from its close ligamentous union with the ulna and the transmission of force to it through the radio-ulnar ligaments.

In the presence of hyperextension the fracture is usually of the main bones. In abduction these authors found a fracture of the scaphoid, sometimes alone, sometimes associated with fracture of the radius.

When the radius is in abduction the radial apophysis is ordinarily detached and carried backward and outward. In adduction the internal portion of the radius is frequently the only portion fractured. Thus it is seen that the attitude in which the patient falls tends to influence the nature of the fracture.

The authors divide these fractures into three groups:

1. The epiphysis is detached and displaced in various positions. There is practically no intra-articular fracture.